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THE APPLICATION OF ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY FOR CHARACTERIZING THE DEGRADATION OF NI(OH)2/NIOOH ELECTRODES

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In this paper we describe the use of wide-band electrochemical impedance spectroscopy for characterizing the degradation of porous Ni(OH)₂/NiOOH electrodes in concentrated KOH electrolyte solutions. The impedance spectra are interpreted in terms of a finite electrical transmission line and the changes in the components of the electrical analog are followed as a function of cycle number. We show that the degradation of the capacity of rolled and bonded Ni(OH)₂/NiOOH electrodes is caused by rupture of ohmic contacts within the active mass and by restructuring which results in a decrease in the number of active pores.